# IC6.1: Optional Job Sheet

## Introduction to the Top-Down Methodology

**Objective:** Examine a winter weather case and practice the top-down approach to forecasting as seen in the IC 6 Lesson 1 training module.

**Data:** 24 February 2003 winter weather event across Texas. You will be using D2D for this exercise.

**Instructions:**
Load the 24 February 2003 Winter Weather AWOC case on your WES machine in case review mode, using the FWD localization. You will be examining the **18 UTC NAM 40 model initialization** from 24 February 2003 and observational data. Set the D2D clock to 19 UTC, 24 February, 2003.

On the regional scale, load a satellite IR image and overlay lightning data. Check the cursor readout of the cloud top temperatures across northern Texas and southern Texas. In another pane load a time height display of NAM 40 RH and Temperature from a point in south central Texas.

**Question 1. Where are the clouds supportive of ice crystal growth? Based on the NAM40 time-height plot, infer when ice crystals are possible in south central Texas.**

In another regional scale pane, load NAM 40 model soundings using points placed over Ardmore, OK; Dallas, TX; Austin, TX; and Abilene, TX. Also load RAOBs from OUN, FWD, and CRP.

**Question 2. Which soundings will support ice in the cloud layer?**

Focus on the **18Z FWD** RAOB, and in a separate pane create a plan view of NAM 40 and MSAS surface wet-bulb temperatures (+1.5 $^{o}$C is + 34.7 $^{o}$F). Using the plan view web-bulb surface temperatures and the FWD RAOB, answer the following questions:

**Question 3. What is the maximum temperature in the warm layer? _____ $^{o}$C**

**Question 4. Is the warm layer unsaturated (circle one)? YES/NO**

**Question 5. Based on this warm layer, will precip melt, partially melt, or remain as snow (circle one)?**

**Question 6. What is the wet-bulb zero height? _____feet**

**Question 7. What is the surface wet-bulb zero temperature in the Dallas area?**

_____$^{o}$C.

**Question 8. Is this supportive of snow (circle one)? YES/NO**

**Question 9. What are the low-level lapse rates like--Steep or weak (circle one)? What does that say about precipitation type?**

**Question 10. Based on the top-down approach you have taken with this sounding, put it all together and make a forecast of just P-type and the evolution of the P-type using the NAM 40 sounding for the Dallas/Ft. Worth Metroplex from 18 Z on the 24$^{th}$ through 12 Z on the 25$^{th}$:**

Examine the Austin, TX NAM 40 sounding.

**Question 11. Using the top-down approach, what is the expected P-type and evolution from 18 Z on the 24$^{th}$ through 12 Z on the 25$^{th}$ for Austin based on this sounding?**

Examine the Ardmore, OK NAM 40 sounding.

**Question 12. Using the top down approach, what is the expected P-type and evolution from 18Z on the 24th through 12 Z on the 25th for Ardmore based on this sounding?**

**An answer key is available for this job sheet. Please see your local AWOC Winter Weather facilitator to obtain a copy.**